

ECON 227-003: Economic Statistics

2020 Fall

Instructor: WenJing Cai
E-mail: wenjing.cai@mcgill.ca
Office Location: LEA 437
Office Hours: MW 10:30-11:30
Lecture Hours: MW 11:35-12:55
TA:
Endong Wang (endong.wang@mail.mcgill.ca)

Course Description

Distributions, averages, dispersions, sampling, testing, estimation, correlation, regression, index numbers, trends and seasonals.

Course Restriction

1. Students must register for both ECON 227D1 and ECON 227D2.
2. No credit is given for this course unless both
 - (a) ECON 227D1 is completed successfully in Fall 2020 and
 - (b) ECON 227D2 is completed successfully in Winter 2021.
3. ECON 227D1 and ECON227D2 together are equivalent to ECON 227 and to ECON 227D.
4. You may not be able to receive credit for this course and other statistics courses. Check here (www.mcgill.ca/oasis/academic/courses/course-overlap) for more details.

Required Materials

Textbook: McClave, J.T., P.G. Benson and T. Sincich. Statistics for Business and Economics, 13th Edition. Pearson Canada Ltd., 2018.

Grading Policy

COMPONENT	WEIGHT	CHAPTER	DATE
Homework	20%	CHAPTER 1-5	
Midterm 1	20%	Chapter 1-2	
Midterm 2	20%	Chapter 3-4	
Final	40%	Chapter 1-5	TBD

*ECON 227D1 and ECON 227D2 are each worth 50 percent of the overall grade, except in the situation described below (see Honours to Major Transfers). The weights listed in this table are only for the ECON 227D1 portion of the course.

- Since this is full course (D1+D2) there is no supplemental for the Fall semester. The only supplemental, held the following August, is for D1+D2, the course as a whole.
- Deferral of a Fall final examination can be arranged with the instructor, but for the Winter final examination must be arranged through the university.

Honours to Major Transfers

- Transfers from Honours to Major are routine, although this is an unusual feature within the University: these can be done after the add/drop period. There are two time windows when transfers are permitted and transfers at any other times are not permitted.
 - Window 1, up to the end of the week following the mid-term examination, the end of the 7th week of the Fall semester (Friday, October 16).
 - Window 2, during the January add/drop period. After the end of window 2, transfer to 227 is not possible.
- If you transfer from ECON 257, the grade will be based entirely on work in ECON 227. The interim grade from 257 will not be used. The instructor in Econ 227 will determine the weights given to different elements of the work in that course. Note that this is **not** necessarily the same arrangement that is used for the microeconomics transfer 250-230; check the Econ 250 course outline for the arrangement that will be made in that case.
- For students using window 1, their marks in ECON 257D1 will be disregarded and their Fall semester grade will be determined solely on ECON 227D1 exams. Students that enter ECON 227D1 prior to September 30 are expected to write all ECON 227D1 exams, while students that enter ECON 227D1 on or after September 30, the weight of Midterm 2 will be 30 percent and the Final will be 50 percent.
- For students transferring using window 2, their grade obtained in ECON 227D2 will count for 100 percent when computing their grades in 227D.

Grade Criterion

Letter	Points	Percent
A	4	85 – 100
A-	3.7	80 – 84
B+	3.3	75 – 79
B	3	70 – 74
B-	2.7	65 – 69
C+	2.3	60 – 64
C	2	55 – 59
D	1	50 – 54
F	0	00 – 49

Lectures

- The lectures are online lecture using Zoom during usual time Mon, Wed from 16:05-17:25. Because the students will be possible in different timezone, so the lectures will also be recorded and saved in myCourses. There are detailed information about using Zoom in <https://www.mcgill.ca/tls/instructors/class-disruption/zoom>. The link of Zoom for each lectures will be sent out before every class.

Office Hours

- Office hours are not recorded, optional and use Zoom in MW 10:30 –11:30.
- The office hours are first-come, first-served basis.
- If you use office hours, you are expected to “arrive” prepared (ie, with your questions ready) and to be efficient so that the maximum number of students can make use of the available time.
- If you are unable to attend office hours because of scheduling conflicts, you can email your questions to me or you could ask TA.

Homework

- There are four homework, and each worth five percent.
- The submission times are listed in the schedule.
- You need to submit your homework through myCourses.

Schedule

DATE	EVENT	COVERAGE	Homework
Wed, September 2, 2020	Statistics, Data and Statistical Thinking	Chapter 1	
Wed, September 9, 2020	Statistics, Data and Statistical Thinking	Chapter 1	
Mon, September 14, 2020	Methods for Describing Sets of Data	Chapter 2	
Wed, September 16, 2020	Methods for Describing Sets of Data	Chapter 2	
Mon, September 21, 2020	Methods for Describing Sets of Data	Chapter 2	
Wed, September 23, 2020	Methods for Describing Sets of Data	Chapter 2	
Mon, September 28, 2020	Methods for Describing Sets of Data	Chapter 2	
Wed, September 30, 2020	Probability	Chapter 3	
Mon, October 5, 2020	MIDTERM 1 (:00 – :00)	Chapter 1 - 2	Hw1
Wed, October 7, 2020	Probability	Chapter 3	
Wed, October 14, 2020	Probability	Chapter 3	
Mon, October 19, 2020	Probability	Chapter 3	
Wed, October 21, 2020	Probability	Chapter 3	
Mon, October 26, 2020	Random Variables and Probability Distributions	Chapter 4	
Wed, October 28, 2020	Random Variables and Probability Distributions	Chapter 4	Hw2
Mon, November 2, 2020	Random Variables and Probability Distributions	Chapter 4	
Wed, November 4, 2020	Random Variables and Probability Distributions	Chapter 4	
Mon, November 9, 2020	Random Variables and Probability Distributions	Chapter 4	
Wed, November 11, 2020	Random Variables and Probability Distributions	Chapter 4	
Mon, November 16, 2020	MIDTERM 2 (:00 – :00)	Chapters 3 – 4	
Wed, November 18, 2020	Sampling Distributions	Chapter 5	Hw3
Mon, November 23, 2020	Sampling Distributions	Chapter 5	
Wed, November 25, 2020	Sampling Distributions	Chapter 5	
Mon, November 30, 2020	Sampling Distributions	Chapter 5	
Wed, December 2, 2020	Sampling Distributions	Chapter 5	
Wed, December 9, 2020			Hw4
TBD	Final Exam	Chapters 1 – 5	

Learning goals

The schedule is tentative and subject to change.

- EDA (exploratory data analysis)
 - Introduction of data (definition, measurement, type, statistics description, Inference)
 - Descriptive Statistics: Tabular and Graphical Displays (pie chart, histogram)
 - Numerical Measure: Location, scale, distribution shape, covariance
- Probability theory, including the expected value and standard deviation of random variables
 - Definition of probability
 - Event, Laws of probability (Addition, Complement, Union, Intersection)

- Conditional probability
- Bayes's Rule
- Discrete Probability Distribution
 - random variable, discrete distribution (Expectation, Variance), Covariance
 - Geometric, binomial, Poisson, and hypergeometric discrete random variables (Application)
- Continuous Probability Distribution
 - Uniform distribution
 - Normal distribution (probability calculation, standard normal distribution)
 - Binomial and Normal
 - Poisson and Exponential distribution
- Sampling distributions
 - Selecting sample from finite or infinite sample
 - Point estimation (sample mean, sample variance)
 - Distribution of sample means of random variable (expectation, standard deviation)
 - Central limited theorem
 - Distribution of the sample proportion
 - Unbiased, consistence, efficient of estimator

Calculator

Students should have a calculator capable of statistics computations with two-variable capacity. In the winter term there will be MINITAB and EXCEL computer output.

Course Policies

Language of Submission

In accordance with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

Academic Integrity

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures.

Credit

- Credit will be given for ONLY ONE of the following introductory statistics courses: AEMA 310, BIOL 373, ECON 227D1/D2, ECON 257D1/D2, GEOG 202, MATH 203, MGCR 271, MGCR 273, PSYC 204, SOCI 350.
- Credit will be given for ONLY ONE of the following intermediate statistics courses: AEMA 411, BIOL 373, ECON 227D1/D2, ECON 257D1/D2, GEOG 351, MATH 204, PSYC 305, SOCI 461 with the exception that you may receive credit for both PSYC 305 and ECON 227D1/D2 or ECON 257D1/D2
- If you have already received credit for MATH 324 or MATH 357, you will NOT receive credit for any of the following: AEMA 310, AEMA 411, BIOL 373, ECON 227D1/D2, ECON 257D1/D2, GEOG 202, GEOG 351, MATH 203, MATH 204, MGCR 271, MGCR 273, PSYC 204, PSYC 305, SOCI 350.